**Titanic Survival Prediction**

**Project Overview**

This project aims to predict whether a passenger on the Titanic survived or not using machine learning techniques. It is a classic classification problem that helps in understanding data preprocessing, feature engineering, and model evaluation.

**Dataset**

The dataset used is the Titanic dataset, which includes information about passengers such as:

* Passenger ID
* Age
* Gender
* Ticket Class
* Fare
* Embarked Port
* Survival Status (Target Variable)

**Technologies Used**

* Python
* Pandas & NumPy (Data Processing)
* Seaborn & Matplotlib (Data Visualization)
* Scikit-learn (Machine Learning)

**Steps Involved**

1. **Data Cleaning**: Handling missing values and dropping irrelevant columns.
2. **Feature Engineering**: Encoding categorical variables.
3. **Model Selection**: Using a Random Forest classifier to train the model.
4. **Evaluation**: Measuring accuracy and generating a classification report.

**Results**

The model provides predictions on Titanic passengers survival chances based on historical data. Accuracy and other evaluation metrics are displayed after execution.

**Future Improvements**

* Implement other machine learning models (e.g., Logistic Regression, SVM, Neural Networks).
* Optimize hyperparameters for better performance.
* Explore feature engineering techniques to improve predictions.

**License**

This project is open-source and available for educational purposes.